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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/824,772 | 04/04/2001 | Laure Seguin | 205513US2 | 1507 |
| 22850 | 7590 | 09/21/2006 | EXAMINER | |
| C. IRVIN MCCLELLAND OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | LY, ANH VU H | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2616 | |

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

SPK

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|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 09/824,772 | Applicant(s) SEGUIN, LAURE | |
| | Examiner Anh-Vu H. Ly | Art Unit 2616 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7-21 and 23-29 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5,14,21 and 26 is/are allowed.
- 6) ☒ Claim(s) 1-4,7-10 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 2,9-13,15-17,23-25 and 27-29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 7, 2006 has been entered.

Claim Objections

2. Claims 2, 9-10, 12, 16, 24, and 28 are objected to because of the following informalities:

With respect to claims 2, 9, and 10, in line 1, "the first layer" should be changed to --the first sub-layer-- because according to claim 1, the first sub-layer determines and reduces the size of the transmission units and not the first layer.

With respect to claim 12, in line 14, "the first layer adjusts" should be changed to --the first sub-layer adjusts-- because according to lines 5-8 of claim 12, the first sub-layer determines and reduces the size of the transmission units and not the first layer.

Claims 16, 24, and 28 are automatically objected to as they depend upon objected independent claim 12.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter

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sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmadvand (US Patent No. 6,477,670 B1) in view of Dohi et al (US Patent No. 6,341,224 B1). Hereinafter, referred to as Ahmadvand and Dohi.

With respect to claim 1, Ahmadvand discloses a system for transmitting data over a physical resource (Fig. 3), comprising:

a layer configured to manage the physical resource and to guarantee a quality of service (Fig. 3 and col. 6, lines 13-19 – there are a number of entities inside a QoS plane that can be dynamically reconfigured or fine tuned and optimized to meet specific QoS requirements of a CoS. This includes, segment size, resource assignments, logical channel to transport channel mapping, priorities, etc...), wherein access to the physical resource is divided into transmission time intervals (Fig. 3 illustrates a number of transport channels containing multiplexed RLC PDUs or RLC frames. According to the UMTS network and its specifications, each transport channel has a equal transmission time interval (TTI), which is required by the physical layer for sending a block of packets or Transport Block Set from MAC to the physical layer; wherein the number of packets in the Transport Block as well as the size of a Transport Block is governed by the peer-peer RRC connection);

a first sub-layer configured to supply a transmission support in accordance with the quality of service and to segment the data into transmission units (col. 5, lines 53-59 – each QoS plane is configured to handle a CoS and each including D-RLC and C-RLC. D-RLC and C-RLC receive the IP data packets 45, create the RLC PDUs, or RLC frames), the first sub-layer

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reducing a size of at least one of the transmission units when transmission conditions on the physical resource are degraded (col. 6, lines 58-65 – SCR module of the D-RLC chops the IP packet 46 into smaller size packets, which are more suitable for error recovery and retransmission. These smaller size packets may be variable and dynamically optimized in different QoS planes based on the QoS requirements and on the radio link conditions. This implies that when the radio link conditions degraded and increased error rates, small size packets are used for better error recovery and reduced error rates);

a second sub-layer configured to transmit at least one of the transmission units over the physical resource during each of the transmission time intervals (Fig. 3, MAC layer 80 multiplexed RLC PDUs onto different transport channels for transmitting by the physical layer according to TTIs of the transport channels), the transmission time interval being a periodic time interval during which the second sub-layer is allowed to access the physical resource (According to the UMTS network and its specifications, each transport channel has a equal transmission time interval (TTI), which is required by the physical layer for sending a block of packets or Transport Block Set from MAC to the physical layer); and

a physical layer configured to perform error correction coding or decoding of the data (col. 4, lines 55-57 – the physical layer of the UMTS radio interface is responsible for coding and modulation of data transmitted over the air, which also responsible for decoding and demodulation in the reverse mode), and

wherein the second sub-layer is configured to check whether the quality of service has been complied with (Abstract, at the MAC sublayer, the RLC frames are multiplexed onto transport channels based on their QoS requirements and transmitted to the physical layer for

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propagation to the receiving end. In other words, the MAC sub-layer ensures that the RLC frames are multiplexed onto the transport channels according to their QoS requirements).

Ahmadvand does not disclose assigning a set level to the ratio of received signal power to noise plus interference. Dohi discloses a transmission power control in a mobile communication system by measuring a received SIR (signal to interference plus noise power ratio), comparing the measured SIR to a predetermined target value of SIR (a set level to the ratio of received signal power to noise plus interference) and outputting transmission power control information to an opposing station (col. 2, lines 48-59). Herein, the predetermined target value of SIR relates to the quality of service. It would have been obvious to one having ordinary skill in the art at the time the invention was made to set targeted SIR in Ahmadvand's system, as suggested by Dohi, to achieve a certain quality of service.

With respect to claim 2, Ahmadvand discloses that the layer determines a plurality of sizes of the transmission units for the transmission time intervals (col. 6, lines 13-17 – a number of entities inside a QoS plane that can be dynamically reconfigured or fine tuned and optimized to meet specific QoS requirements of a CoS. This includes, segment size at the SCR module of the RLC. This implies that the segment size is variable and more than one size is available for the transmission units); the second sub-layer selects one of the plurality of sizes according to the transmission conditions (col. 6, lines 58-65 – SCR module of the D-RLC chops the IP packet 46 into smaller size packets, which are more suitable for error recovery and retransmission. Herein, a packet size is already selected); and the second sub-layer selecting a smaller one of the plurality of sizes when the transmission conditions on the physical resource are degraded (col. 6,

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lines 58-65 - smaller size packets may be variable and dynamically optimized in different QoS planes based on the QoS requirements and on the radio link conditions. This implies that when the radio link conditions degraded and increased error rates, smaller size packets are used for better error recovery and reduced error rates).

With respect to claim 3, Ahmadvand discloses that wherein the layer (assumed as the first sub-layer) adjusts the size of each of the transmission units according to the transmission conditions and transmits the size adjusted to the second sub-layer (col. 6, lines 58-65 – smaller size packets, forwarded to the MAC layer for multiplexing, may be variable and dynamically optimized in different QoS planes based on the QoS requirements and on the radio link conditions).

With respect to claim 4, Ahmadvand discloses that wherein the layer (assumed as the first sub-layer) reduces the size of each of the transmission units when the transmission conditions on the physical resource are degraded (col. 6, lines 58-65 – smaller size packets may be variable and dynamically optimized in different QoS planes based on the QoS requirements and on the radio link conditions. This implies that when the radio link conditions degraded and increased error rates, small size packets are used for better error recovery).

With respect to claim 8, Ahmadvand discloses a UMTS mobile telephone system using the system of claim 1(Fig. 3).

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4. Claims 7 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmadvand (US Patent No. 6,477,670 B1) and Dohi et al (US Patent No. 6,341,224 B1) further in view of Hwang (US Pub 2004/0057460 A1).

With respect to claims 7 and 18-20, Ahmadvand and Dohi have addressed all limitations recited in independent claim 1. Ahmadvand does not disclose that the layer is configured to retransmit the transmission units if acknowledgement is not received. Hwang discloses that the layer is configured to retransmit the transmission units if acknowledgement is not received (page 4, lines 3-6 – if the RLC 100 detects that there is no acknowledgement on transmission of each PDU, the RLC should multiplex the present PDU, and retransmits the PDU). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the feature of retransmissions when acknowledgments are not received in Ahmadvand's system, as suggested by Hwang, to guarantee that packets are fully received at the receiving end.

5. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmadvand (US Patent No. 6,477,670 B1) and Dohi et al (US Patent No. 6,341,224 B1) further in view of Sarkkinen et al (US Patent No. 6,950,420 B2)). Hereinafter, referred to as Ahmadvand, Dohi, and Sarkkinen.

With respect to claims 9 and 10, Ahmadvand and Dohi have addressed all limitations recited in independent claim 1. Ahmadvand does not disclose that the layer supplies to the second sub-layer the plurality of sizes by means of a table. Sarkkinen discloses that the layer supplies to the second sub-layer the plurality of sizes by means of a table (col. 6, lines 50-54 - the UTRAN/MAC will obtain a TFC (table) from RRC and will make a TF selection for an

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upcoming TTI. It will inform the UTRAN/Tr-RLC of the appropriate data block size and data block set size). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the feature of sending a TFC to second sub-layer or MAC layer in Ahmadvand's system, as suggested by Sarkkinen, to select an appropriate size for the transmission units according to radio link conditions.

Allowable Subject Matter

6. Claims 11, 13, 15, 17, 23, 25, 27, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Claims 5, 14, 21, and 26 are allowed. Claims 12, 16, 24, and 28 contain the allowable subject matter but are objected to for minor informalities.

The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach or fairly suggest that the size of each of the transmission units is reduced in the case of degradation of the transmission conditions when the transmission power of the transmitter reaches a maximum value, as specified in independent claims 5 and 12.

Response to Arguments

8. Applicant's arguments filed July 7, 2006 have been fully considered but they are not persuasive.

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Applicant argues in page 10 that Ahmadvand reference does not disclose or suggest that the MAC sub-layer is configured to check whether the quality of service has been complied with. Examiner respectfully disagrees. Ahmadvand discloses (see Abstract) that at the MAC sublayer, the RLC frames are multiplexed onto transport channels based on their QoS requirements and transmitted to the physical layer for propagation to the receiving end. In other words, the MAC sub-layer ensures that the RLC frames are multiplexed onto the transport channels according to their QoS requirements.

Applicant further argues in page 10 that there is no motivation for combining the teachings of Ahmadvand and Dohi. Examiner respectfully disagrees. Ahmadvand and Dohi teachings are directed to controlling the quality of a service in wireless networks. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to set targeted SIR in Ahmadvand's system, as suggested by Dohi, to achieve a certain quality of service.

Conclusion


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh-Vu H. Ly whose telephone number is 571-272-3175. The examiner can normally be reached on Monday-Friday 7:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

avl


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SUPERVISORY PATENT EXAMINER 9/18/06